

HDR Inc.

Customer Success Story

AutoCAD® Architecture

AutoCAD® MEP

AutoCAD® P&ID

Autodesk® 3ds Max® Design

Autodesk® Design Review

Autodesk® Quantity Takeoff

Autodesk Consulting

Our transition to model-based design has definitely surpassed our expectations. Being able to have all involved parties visualize the entire project has had a huge impact and influence on both our customers' experience and the coordination of our multidisciplinary design teams. Most important, clients can much more easily understand our designs and make better decisions.

—David Kramer, P.E.
National ASMEC Service
Center Director
HDR Inc.

Looking forward.

HDR Inc.'s engineering group sees the powerful results of adopting 3D model-based design and Autodesk® software.



Image courtesy of HDR Inc.

Summary

Founded in 1917, the Henningson Engineering Company opened its doors with a dozen employees and the mission of designing better water and sewer systems for the new communities cropping up through the midwestern United States. The ensuing nine decades have seen H.H. Henningson's brainchild grow into HDR Inc., a fully integrated architectural, engineering, and consulting firm employing more than 7,900 professionals in 179 locations throughout the world.

An Autodesk customer for over a decade, HDR now provides architectural and engineering services to projects for a wide variety of industries, including health care, nanotechnology, infrastructure, transportation, water/wastewater, and environmental engineering, among many others. In recent years, the company's relationship with Autodesk has been strengthened through its commitment to expand its use of 3D model-based design across the firm: HDR Architecture uses a combination of Autodesk® Revit® Architecture software with AutoCAD® MEP software, while HDR Engineering has integrated AutoCAD® Architecture software with AutoCAD MEP. As proof of that commitment, HDR signed a multiyear agreement with Autodesk Consulting that includes ongoing consulting and technical program management services.

The Challenge

Despite uncertain economic times, business remains steady at HDR Engineering's ASMEC (Architecture, Structural, Mechanical, Electrical, Civil, and CAD) Service Center in Omaha, Nebraska. "Our typical day is not particularly calm," says David Kramer, Service Center director. "We are a design center for all manner of engineers, so we have a group of architects working together with structural, MEP, and civil engineers. We execute many jobs at the same time, and we need the flexibility to jump from job to job, answering a multitude of client questions along the way."

Kramer's team is also in charge of implementing the building information modeling (BIM) program for HDR's Engineering Company, a formidable challenge given the size of the engineering operation. Nonetheless, Kramer says that the transition to model-based design has resulted in many of the company's projects heading toward its use.

"On the engineering side, we began our transition to model-based design in January of 2008," says John Bowen, national BIM integration manager at HDR Engineering. "Our immediate goal is to bring the HDR design centers up to speed. The transition has been proceeding very positively. In every case so far, we've made believers out of both project managers and customers. Being able to visualize projects much more easily has been a huge benefit to everybody involved."

Autodesk®

The Solution

As examples of projects that have benefited from Autodesk® software and model-based design processes, Kramer and Bowen point to two recent jobs: a combined sewer project for an Iowa municipality, and the creation of a Public Power District Operations Center in Nebraska.

The Wet Weather project in Iowa consists of a largely underground concrete facility that is dedicated to separating solids from storm water during heavy rains, thereby minimizing pollution impact on the surrounding environment.

“There is a significant amount of piping and electrical equipment that is carefully routed through the facility,” says Kramer. “This is definitely a heavy industrial project. Routing pipes and electrical through the central structure was a big challenge for our designers, all of whom say the project would have been more time consuming had it not been for Autodesk software.”

Using a combination of Autodesk software that includes AutoCAD® Architecture, AutoCAD® MEP, AutoCAD® P&ID, Autodesk® 3ds Max® Design for rendering, and Autodesk® Design Review software to extensively review their model, Kramer and Bowen have already seen notable improvement in project efficiency and customer satisfaction.

“Visualization has been very important,” says Bowen. “Right from the inception of this project, we were able to use our digital models to more quickly explain and visualize the project for clients who had no knowledge of traditional construction documents. That alone represents a big success for us.”

In addition, cost estimators at Design Build, Inc., an HDR company based in Kansas City, Missouri, used HDR Engineering’s models together with Autodesk® Quantity Takeoff software to help reduce cost-estimating time.

“Our cost estimators have noticed a notable reduction in time required to do construction quantity

takeoffs,” says Kramer. “On the Combined Sewer project in Iowa, the hours saved were estimated at 50 percent less than conventional 2D CAD takeoffs. That’s literally work done in half the time.”

A somewhat more traditional architectural project is the 85,000-square-foot, multifunctional Public Power District Operations Center in Nebraska, which includes administration, maintenance, and parking space for employees.

“This project was more architecturally pleasing than many of our engineering jobs,” says Bowen. “Rather than lots of heavy concrete, we worked with glass curves and curtain walls. While that was inspiring, we also had more input from many facets of the Power District, including management operations. There were many twists and turns during the design process and, without Autodesk software and model-based design, we would have had more difficulty keeping up.”

The Result

While the nature of HDR Engineering’s infrastructure projects means that the company remains in demand even in a challenging economy, the company’s move to model-based design has already been showing results and solving business challenges associated with day-to-day operations, client relations, and marketing.

“Our designers have noticed as much as a 20 percent reduction in redesign time when using 3D model-based design, mainly thanks to faster identification of possible system interferences,” says Bowen. “That is a significant time savings compared to traditional reviews, not to mention the fact that our multidisciplinary design teams can much more easily coordinate with each other’s work.”

“Our transition to model-based design has definitely surpassed our expectations,” agrees Kramer. “Being able to have all involved parties visualize the entire project has had a huge impact and influence on both our customers’ experience and the coordination of our multidisciplinary design teams. Most



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important, clients can much more easily understand our designs and make better decisions.”

Autodesk Consulting’s Program Management services have helped further ease the transition by providing strategic guidance on process and workflow improvements through use of Autodesk software, and Bowen is quick to give credit where credit is ultimately due.

“We’ve enjoyed great support from Autodesk Consulting and our Technical Account Manager all along the way,” he says. “Whether it was providing software support, conducting informative workshops in multiple locations across the country, or offering insightful advice on our rollout approach, they have done a fantastic job and been integral to our success.”

For more information about Autodesk Consulting, visit www.autodesk.com/consulting.



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